

# STIC Search Report

EIC 1700

STIC Database Tracking Number: 190127

**TO:** Michael Bernshteyn  
**Location:** REM 10A34  
**Art Unit :** 1713  
**May 17, 2006**

**Case Serial Number:** 10/697181

**From:** Kathleen Fuller  
**Location:** EIC 1700  
**REMSEN 4B28**  
**Phone:** 571/272-2505  
**Kathleen.Fuller@uspto.gov**

## Search Notes

I searched this polymer by the starting monomers and by a structure query to cover structural repeating units. There are 13 polymers and 9 CA references from the polymers. There is nothing else. Only one CA reference includes sulfur and it is to the applicants. Sulfur is not actually shown in this structure only mentioned in the abstract.



# STIC Search Results Feedback Form

**EIC 17000**

Questions about the scope or the results of the search? Contact the EIC searcher or contact:

Kathleen Fuller, EIC 1700 Team Leader  
571/272-2505 REMSEN 4B28

**Voluntary Results Feedback Form**

➤ I am an examiner in Workgroup:  Example 1713

➤ Relevant prior art found, search results used as follows:

- 102 rejection
- 103 rejection
- Cited as being of interest.
- Helped examiner better understand the invention.
- Helped examiner better understand the state of the art in their technology.

*Types of relevant prior art found:*

- Foreign Patent(s)
- Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art not found:

- Results verified the lack of relevant prior art (helped determine patentability).
- Results were not useful in determining patentability or understanding the invention

Comments:

Please expedite the search

Thank you

8-164

Access DB# 19027

## SEARCH REQUEST FORM

### Scientific and Technical Information Center

Requester's Full Name: MICHAEL BERNSHTEYN Examiner #: 81515 Date: 05/16/06  
Art Unit: 1713 Phone Number 302-242-2411 Serial Number: 10/697,181  
Mail Box and Bldg/Room Location: RCM 10A34 Results Format Preferred (circle)  PAPER  DISK  E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc. if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Block copolymers and preparation thereof

Inventors (please provide full names): Mohan Gopalkrishna Kulkarni,  
Jayant Jagannath Khandare

Earliest Priority Filing Date: 02/05/2004

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please, try to find block copolymer having Formula 1 (claim 1), where the applicant elected the following species:

$R_1$  - H

$R_2$  - H

X - ester

L -  $NHCH_2CH_3$

Y - N-Acetyl Glucosamine

Thank you  
M. Bernshteyn

SCIENTIFIC REFERENCE BR  
Sci & Tech Inf. Ctr

MAY 16 2006

Pat. & T.M. Office

### STAFF USE ONLY

Searcher: K. F. Miller

Searcher Phone #: \_\_\_\_\_

Type of Search

NA Sequence (#) \_\_\_\_\_

AA Sequence (#) \_\_\_\_\_

Vendors and cost where applicable

STN ✓

Dialno

=> file reg  
FILE 'REGISTRY' ENTERED AT 13:56:04 ON 17 MAY 2006  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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Property values tagged with IC are from the ZIC/VINITI data file  
provided by InfoChem.

STRUCTURE FILE UPDATES: 16 MAY 2006 HIGHEST RN 884586-69-0  
DICTIONARY FILE UPDATES: 16 MAY 2006 HIGHEST RN 884586-69-0

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

\*\*\*\*\*  
\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

Structure search iteration limits have been increased. See HELP SLIMITS  
for details.

REGISTRY includes numerically searchable data for experimental and  
predicted properties as well as tags indicating availability of  
experimental property data in the original document. For information  
on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> file hcpl  
FILE 'HCAPLUS' ENTERED AT 13:56:08 ON 17 MAY 2006  
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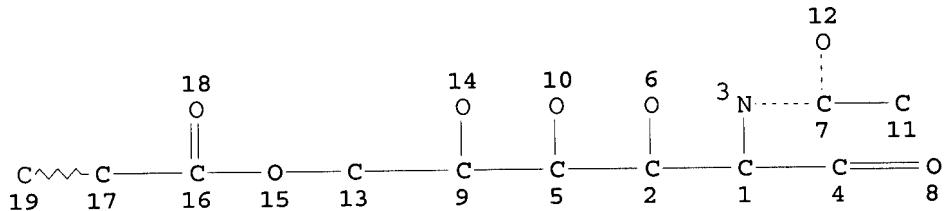
FILE COVERS 1907 - 17 May 2006 VOL 144 ISS 21  
FILE LAST UPDATED: 16 May 2006 (20060516/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que

L4 4 SEA FILE=REGISTRY ABB=ON 207442-00-0/CRN  
 L5 2 polymers 2029 SEA FILE=REGISTRY ABB=ON 2210-25-5/CRN  
 L6 with both 2 polymers 2 SEA FILE=REGISTRY ABB=ON L4 AND L5  
 L7 2 polymers 2 SEA FILE=HCAPLUS ABB=ON L6  
 L8 STR 1



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

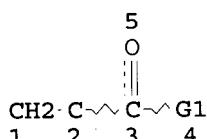
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 19

STEREO ATTRIBUTES: NONE

L9 STR 2



VAR G1=O/N

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

L11 SCR 2043

L13 13 SEA FILE=REGISTRY SSS FUL L8 AND L9 AND L11

L14 9 SEA FILE=HCAPLUS ABB=ON L13

L15 9 SEA FILE=HCAPLUS ABB=ON L7 OR L14

L16 1 SEA FILE=HCAPLUS ABB=ON L15 AND (?MERCAP? OR ?SULFID? OR SULFUR OR SULPHUR)

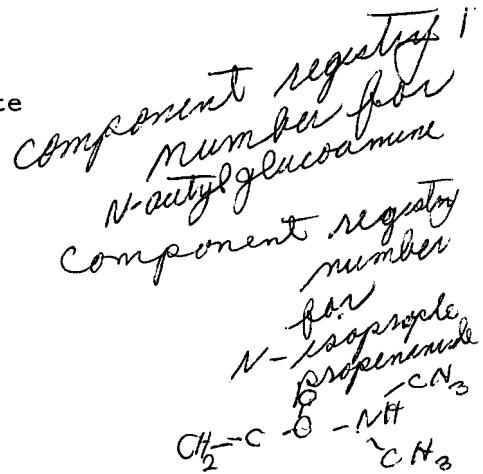
=> d 116 ibib abs ind hitstr

L16 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:394522 HCAPLUS

DOCUMENT NUMBER: 142:412238

TITLE: N-acetyl glucosamine-containing block copolymers  
 lysozyme inhibitor and their preparation



query for glucosamine

13 polymers from  
 structure 1 and 2

only 1 CA reference with  
 desired polymer and S  
 applicant

INVENTOR(S): Kulkarni, Mohan Gopalkrishna; Khandare, Jayant Jagannath  
 PATENT ASSIGNEE(S): Council of Scientific and Industrial Research, India  
 SOURCE: U.S. Pat. Appl. Publ., 10 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

*Application*

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005095220	A1	20050505	US 2003-697181	20031029
			US 2003-697181	20031029

## PRIORITY APPLN. INFO.:

AB The block copolymers useful as effective lysozyme inhibitor in medicine and biotechnol., has a formula -[CH<sub>2</sub>C(R<sub>1</sub>)(COL)]<sub>m</sub>SCH<sub>2</sub>CH<sub>2</sub>XCH<sub>2</sub>CH<sub>2</sub>S[CHC(R<sub>2</sub>)(CO<sub>2</sub>Y)]<sub>n</sub>- (R<sub>1</sub>, R<sub>2</sub> = H, Me, Et, phenyl; X = ester or amide link; m = 3-500; n = 2-50; L = OH, NH<sub>2</sub> OCH<sub>3</sub>, NHCH(CH<sub>3</sub>)<sub>2</sub>; Y = N-acetyl glucosamine (NAG), mannose, galactose, sialic acid, fructose, ribulose, erythrocose, xylulose, psicose, sorbose, tagatose, glucopyranose, fructofuranose, deoxyribose, galactosamine, sucrose, lactose, isomaltose, maltose, cellobiose, cellulose and amylose). The copolymers exhibit effective inhibition even at very low ligand concns. The block copolymers could be used for prevention and treatment of bacterial and viral infections. Moreover these polymers can be stimuli sensitive and be used for the recovery of biomols. The methodol. of preparation of block copolymers reported here can be extended to other polymers and ligands such as sialic acid and used for preventing influenza and/or rotavirus infections. A method for preparing the block copolymers comprises (a) dissolving polymer having terminal reactive group (e.g., N-isopropylacrylamide polymer with carboxy end group) in a solvent (e.g., iso-Bu alc.), (b) adding to solvent of step (a), an oligomer having terminal reactive group (e.g., acryloyl N-acetyl glucosamine polymer with OH end group) to form a reaction mixture, (c) dissolving a coupling agent (e.g., dicyclohexyl carbodiimide) to the reaction mixture, (d) allowing a reaction between the reaction mixture and the coupling agent for 24-48 h at a room temperature, (e) removing the unreacted coupling agent, (f) precipitating in a non-solvent and vacuum drying at room temperature to give the block copolymer.

IC ICM C08G063-48

ICS C08G063-91; A61K031-785

INCL 424078270; 525054200

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 7, 63

ST acetyl glucosamine block copolymer lysozyme inhibitor

IT Enzyme inhibitors

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(lysozyme; N-acetyl glucosamine-containing block copolymers lysozyme inhibitor)

IT 850513-36-9P

RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)

(N-acetyl glucosamine-containing block copolymers lysozyme inhibitor)

IT 9001-63-2, Lysozyme

RL: PRP (Properties)

(N-acetyl glucosamine-containing block copolymers lysozyme inhibitor)

IT 1892-57-5, 1-Ethyl-3-(3-Dimethylamino-propyl) carbodiimide 30232-12-3,

Mercapto propionic acid

RL: RCT (Reactant); RACT (Reactant or reagent)

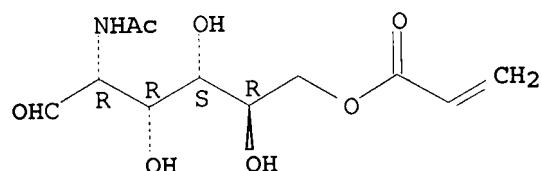
(chain-transfer agent; N-acetyl glucosamine-containing block copolymers  
 lysozyme inhibitor)  
 IT 538-75-0, Dicyclohexyl Carbodiimide 2491-17-0, 1-Cyclohexyl  
 3-(2-Morpholinoethyl) carbodiimide metho-p-toluenesulfonate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (coupling agent; N-acetyl glucosamine-containing block copolymers lysozyme  
 inhibitor)  
 IT 850513-36-9P  
 RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL  
 (Biological study); PREP (Preparation); USES (Uses)  
 (N-acetyl glucosamine-containing block copolymers lysozyme inhibitor)  
 RN 850513-36-9 HCAPLUS  
 CN D-Glucose, 2-(acetylamino)-2-deoxy-, 6-(2-propenoate), polymer with  
 N-(1-methylethyl)-2-propenamide, block (9CI) (CA INDEX NAME)

CM 1

CRN 207442-00-0

CMF C11 H17 N 07

## Absolute stereochemistry.

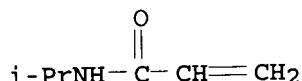


= N-acetyl glucosamine

CM 2

CRN 2210-25-5  
CMF C6 H11 N O

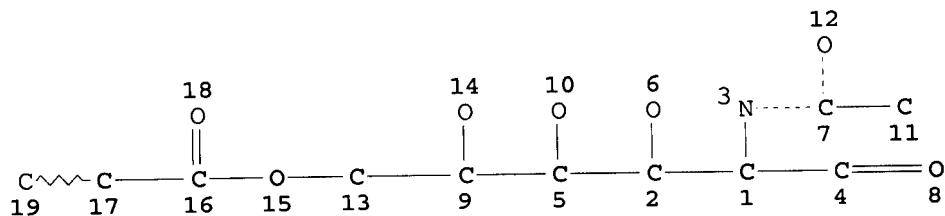
Ketene desired monomer in polymer



Remaining  
8 CA references

=> => d gue

4 SEA FILE=REGISTRY ABB=ON 207442-00-0/CRN  
L4 2029 SEA FILE=REGISTRY ABB=ON 2210-25-5/CRN  
L5 2 SEA FILE=REGISTRY ABB=ON L4 AND L5  
L6 2 SEA FILE=HCAPLUS ABB=ON L6  
L7 STR  
L8

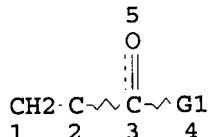


#### NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 19

STEREO ATTRIBUTES: NONE  
 L9 STR



VAR G1=O/N

NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE  
 L11 SCR 2043  
 L13 13 SEA FILE=REGISTRY SSS FUL L8 AND L9 AND L11  
 L14 9 SEA FILE=HCAPLUS ABB=ON L13  
 L15 9 SEA FILE=HCAPLUS ABB=ON L7 OR L14  
 L16 1 SEA FILE=HCAPLUS ABB=ON L15 AND (?MERCAP? OR ?SULFID? OR  
 SULFUR OR SULPHUR)  
 L17 8 SEA FILE=HCAPLUS ABB=ON L15 NOT L16

=> d l17 ibib abs ind hitstr 1-8

L17 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2005:612356 HCAPLUS  
 DOCUMENT NUMBER: 143:115926  
 TITLE: Oligomers containing N-acetyl glucosamine  
 INVENTOR(S): Kulkarni, Mohan Gopalkrishna; Khandare, Jayant  
Jagannath  
 PATENT ASSIGNEE(S): Council of Scientific and Industrial Research, India  
 SOURCE: PCT Int. Appl., 23 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005063833	A1	20050714	WO 2003-IN447	20031231
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,  
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
 ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,  
 TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  
 AU 2003300704 A1 20050721 AU 2003-300704 20031231  
 US 2005222326 A1 20051006 US 2004-812838 20040330  
 US 6977285 B2 20051220

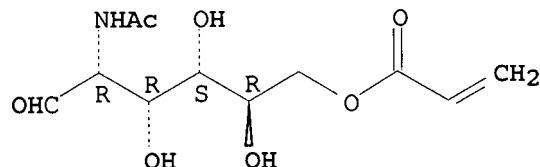
PRIORITY APPLN. INFO.: WO 2003-IN447 A 20031231  
 AB Functional polyvalent oligomers for applications in medicine and  
 biotechnol. are disclosed. These oligomers have the formula  
 $R1[CH2CR(OCOX)]nY$ , wherein R is H, CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, R1 is H, NH<sub>2</sub>, OH, COOH, X is  
 N-acetylglucosamine, mannose, galactose and sialic acid, fructose,  
 ribulose, erythrollose, xylulose, psicose, sorbose, tagatose,  
 glucopyranose, fructofuranose, deoxyribose, galactosamine, sucrose,  
 lactose, isomaltose, maltose, cellobiose, cellulose and amylose, Y is H,  
 COOH, OH or NH<sub>2</sub>, and n is from 3 to 50. The present invention also  
 relates to synthesis of such oligomeric ligands. The method of synthesis  
 of the present invention for oligomerization can be applied to other  
 ligands such as sialic acid, mannose and galactose and can be used for the  
 prevention of infections.

IC ICM C08F120-28  
 CC 35-4 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 6  
 ST acetyl glucosamine group polymer lysozyme inhibitor  
 IT Polymerization  
 (solution; oligomers containing N-acetyl glucosamine)  
 IT 121408-64-8P 207442-01-1P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (oligomers containing N-acetyl glucosamine)  
 IT 9001-63-2, Lysozyme  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (oligomers containing N-acetyl glucosamine)  
 IT 207442-01-1P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (oligomers containing N-acetyl glucosamine)  
 RN 207442-01-1 HCAPLUS  
 CN D-Glucose, 2-(acetylamino)-2-deoxy-, 6-(2-propenoate), homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 207442-00-0  
 CMF C11 H17 N 07

Absolute stereochemistry.



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2005:394868 HCAPLUS  
 DOCUMENT NUMBER: 142:430732

TITLE: Manufacture of triblock copolymers  
 INVENTOR(S): Kulkarni, Mohan Gopalkrishna; Khandare, Jayant  
Jagannath  
 PATENT ASSIGNEE(S): Council of Scientific and Industrial, India  
 SOURCE: U.S. Pat. Appl. Publ., 11 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005096446	A1	20050505	US 2003-697970	20031029
WO 2005042619	A1	20050512	WO 2003-IB6103	20031221
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003298459	A1	20050519	AU 2003-298459	20031221
PRIORITY APPLN. INFO.: US 2003-697970 A 20031029 WO 2003-IB6103 W 20031221				

AB The present invention relates to tri-block copolymers of mol. weight ranging 2,000-2,00,000 Daltons having formula,  $[(CH_2C(R_2)(C:OY))_nSCH_2CH_2X(CH_2C(R_1)(C:OL))_mXCH_2CH_2S(CH_2C(R_2)(C:OY))_n$ ; wherein, R<sub>1</sub>, R<sub>2</sub> = H, Me, Et, Ph; X = ester, amide linkage; m = 3-500; n = 2-50; L = OH, NH<sub>2</sub>, OMe, NHCHMe<sub>2</sub>; Y = N-acetyl glucosamine, mannose, galactose, sialic acid, fructose, ribulose, erythrolose, xylulose, psicose, sorbose, tagatose, glucopyranose, fructofuranose, deoxyribose, galactosamine, sucrose, lactose, isomaltose, maltose, cellobiose, cellulose, amylose], having extraordinarily high binding strength, a simple and effective process for the preparation of the triblock copolymers, and a method of preventing and/or treating microbial infections, wherein the said method comprises steps of exposing the microbe to the triblock copolymer and thereafter, binding of the polymer to the microbe inhibits the microbial infection.

IC ICM C08F118-02  
 INCL 526319000  
 CC 35-8 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 1  
 ST microbial triblock water soluble  
 IT Polymerization catalysts  
   (radical; manufacture of triblock copolymers)  
 IT Polymers, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
   (water-soluble; manufacture of triblock copolymers)  
 IT 2638-94-0, 4,4'-Azobis(4-cyanovaleric acid)  
 RL: CAT (Catalyst use); USES (Uses)  
   (manufacture of triblock copolymers)  
 IT 25189-55-3DP, N-Isopropyl acrylamide homopolymer, carboxyl-terminated, polymers with hydroxyl-terminated poly(acryloyl N-acetyl Glucosamine)  
 207442-01-1DP, hydroxyl-terminated, polymers with carboxyl-terminated poly(N-iso-Pr acrylamide)  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(triblock; manufacture of triblock copolymers)

IT 207442-01-1DP, hydroxyl-terminated, polymers with carboxyl-terminated poly(N-iso-Pr acrylamide)

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(triblock; manufacture of triblock copolymers)

RN 207442-01-1 HCAPLUS

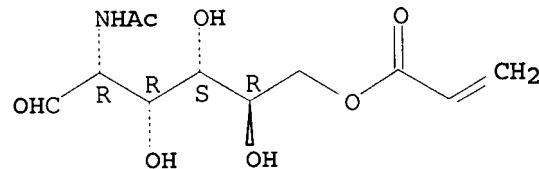
CN D-Glucose, 2-(acetylamino)-2-deoxy-, 6-(2-propenoate), homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 207442-00-0

CMF C11 H17 N O7

Absolute stereochemistry.



L17 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:802600 HCAPLUS

DOCUMENT NUMBER: 141:315111

TITLE: Preparation of polyvalent imprinted polymers useful for medicine and biotechnology

INVENTOR(S): Kulkarni, Mohan Gopalkrishna; Khandare, Jayant Jagannath

PATENT ASSIGNEE(S): Council of Scientific and Industrial Research, India

SOURCE: 11 pp.

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004192869	A1	20040930	US 2003-402142	20030331
US 7041762	B2	20060509		
WO 2004087725	A1	20041014	WO 2003-IN115	20030331
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003226635	A1	20041025	AU 2003-226635	20030331
EP 1615940	A1	20060118	EP 2003-816519	20030331
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			US 2003-402142	A 20030331

WO 2003-IN115 A 20030331

AB The present invention relates to polyvalent imprinted polymers useful in medicine and biotechnol. and to a process for the preparation thereof. Thus, 50 mg poly(acryloyl N-acetylglucosamine)-6-(N-acryloylamino)caproate (macromer, sic) was dissolved in 10 mL water, reacted with 10 mg lysozyme to form a complex, which was then further reacted with 200 mg N-isopropylacrylamide to give a title polymer.

IC ICM C08F026-08

INCL 526264000; X52-631.9; X52-630.31; X52-631.71; X52-634.6

CC 37-3 (Plastics Manufacture and Processing)  
Section cross-reference(s): 9, 63

ST polyvalent imprinted polymer prepn medicine biotechnol application

IT Eubacteria

Virus  
(preparation of polyvalent imprinted polymers useful in medicine and biotechnol.)

IT Enzymes, biological studies

Proteins  
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)  
(preparation of polyvalent imprinted polymers useful in medicine and biotechnol.)

IT 2210-25-5DP, N-Isopropylacrylamide, polymer with complex of poly(N-acetylglucosamine acrylate)-6-(N-acryloylamino)caproate and lysozyme 9001-63-2DP, Lysozyme, complex with poly(N-acetylglucosamine acrylate) acryloylaminocaproate derivs., polymer with N-isopropylacrylamide 207442-01-1DP, Poly(N-acetylglucosamine acrylate), acryloylaminocaproate derivs., complex with lysozyme, and polymer with N-isopropylacrylamide  
RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(preparation of polyvalent imprinted polymers useful in medicine and biotechnol.)

IT 207442-01-1DP, Poly(N-acetylglucosamine acrylate), acryloylaminocaproate derivs., complex with lysozyme, and polymer with N-isopropylacrylamide  
RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(preparation of polyvalent imprinted polymers useful in medicine and biotechnol.)

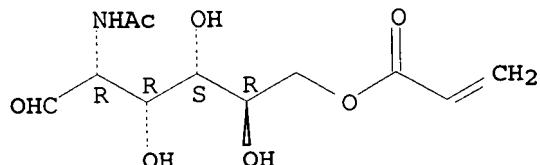
RN 207442-01-1 HCAPLUS

CN D-Glucose, 2-(acetylamino)-2-deoxy-, 6-(2-propenoate), homopolymer (9CI)  
(CA INDEX NAME)

CM 1

CRN 207442-00-0  
CMF C11 H17 N 07

Absolute stereochemistry.



L17 ANSWER 4 OF 8 HCPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:554637 HCPLUS  
 DOCUMENT NUMBER: 142:261872  
 TITLE: Thermal degradation of poly (N-acetylglucosamine acrylate) and poly(glucosamine hydrochloride acrylate)  
 AUTHOR(S): Tirkistani, Fahd A. A.  
 CORPORATE SOURCE: Department of Chemistry, Faculty of Applied Science,  
 Umm Al-Qura University, Makkah Al Mukarramah, Saudi  
 Arabia  
 SOURCE: Mansoura Science Bulletin, A: Chemistry (2004), 31(1,  
 Suppl. 1), 181-194  
 CODEN: MSBCF4; ISSN: 1110-4562  
 PUBLISHER: Mansoura University  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The products of degradation of poly(N-acetylglucosamine acrylate) (PAGA) and poly(glucosamine hydrochloride acrylate) (PGHA) were analyzed by combined gas chromatog.-mass spectrometry. Numerous degradation products were observed indicating that the break-down occurs mainly at the C-N and C-O bonds of the polymers. The activation energy of the degradation of the polymers was measured using Arrhenius relationship.

CC 35-8 (Chemistry of Synthetic High Polymers)  
 ST thermal degrdn glucosamine polyacrylate; kinetics thermal degrdn glucosamine polyacrylate

IT Polymer degradation  
 Polymer degradation kinetics  
 (thermal; of poly(acetylglucosamine acrylate) and poly(glucosamine hydrochloride acrylate))

IT 9003-01-4P, Poly(acrylic acid) 207442-01-1P,  
 Poly(N-acetylglucosamine acrylate) 207442-05-5P, Poly(glucosamine hydrochloride acrylate)  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
 (thermal degradation of)

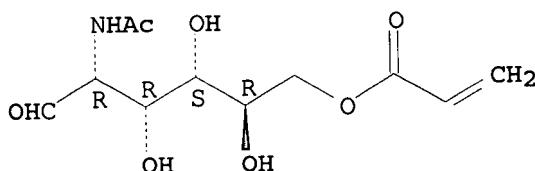
IT 207442-01-1P, Poly(N-acetylglucosamine acrylate)  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
 (thermal degradation of)

RN 207442-01-1 HCPLUS  
 CN D-Glucose, 2-(acetylamino)-2-deoxy-, 6-(2-propenoate), homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 207442-00-0  
 CMF C11 H17 N O7

Absolute stereochemistry.



REFERENCE COUNT:

8

THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS

## RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:556037 HCAPLUS  
 DOCUMENT NUMBER: 137:121600  
 TITLE: Synthesis and use for enzyme separation of thermoprecipitating polymers containing enzyme-specific ligands  
 INVENTOR(S): Vaidya, Alankar Arun; Lele, Bhalchandra Shripad; Kulkarni, Mohan Gopalkrishna; Mashelkar, Raghunath Anant  
 PATENT ASSIGNEE(S): Council of Scientific & Industrial Research, India  
 SOURCE: U.S. Pat. Appl. Publ., 12 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002098567	A1	20020725	US 2000-725641	20001129
US 6605714	B2	20030812		
US 2003027959	A1	20030206	US 2002-127322	20020422
US 6867268	B2	20050315		
US 2005130867	A1	20050616	US 2005-47164	20050131
PRIORITY APPLN. INFO.:			US 2000-725641	A3 20001129
			US 2002-127322	A3 20020422

OTHER SOURCE(S): CASREACT 137:121600

AB The present invention provides novel thermopptg. polymers containing novel enzyme-sensitive ligands, processes for the preparation thereof resp., and to the use thereof for the separation of enzymes. Thus, acrylated monomers containing N-acetylglucosamine, glycine,  $\beta$ -alanine, 4-aminobutyric acid, 6-aminocaproic acid, or glycine are polymerized with a thermosensitive monomer in the presence of a polymerization initiator and polymerization accelerator in a solvent at 30-80° for 1-12 h. The invention also relates to a process for the separation of lysozyme comprising contacting the thermopptg. affinity polymer with an aqueous solution of lysozyme or a mixture of lysozyme and other proteins at a temperature in the range of 4-20° for a time period of 1-16 h, followed by raising the temperature above the LCST (lower critical solution temperature) of the polymer. The precipitated polymer-lysozyme complex is isolated, redissolved in an acidic aqueous solution, and the temperature of the solution raised above the LCST of the polymer, thus isolating the pptd polymer and recovering lysozyme from the solution. With a glycylglycine/acetic anhydride/N-isopropylacrylamide polymer, lysozyme activity increased from 6657 to 33,672 units with 20-21% recovery. The polymers are more stable as compared to N-acetylglucosamine-containing polymer, and are reusable for 16 continuous cycles of solubility/precipitation

IC ICM C12N009-36  
 ICS C08G069-48

INCL 435206000

CC 7-2 (Enzymes)

Section cross-reference(s): 35

ST thermopptg polymer ligand enzyme sepn

IT Polymerization catalysts  
(synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT Acrylic polymers, preparation  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT Enzymes, preparation  
RL: PUR (Purification or recovery); PREP (Preparation)  
(synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT Polymers, preparation  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(thermopptg.; synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT Precipitation (chemical)  
(thermopptn.; synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT 538-75-0, Dicyclohexylcarbodiimide 1892-57-5, 1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide 2491-17-0, 1-Cyclohexyl-3-(2-morpholinoethyl)carbodiimide metho-p-toluenesulfonate  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(condensing agent; synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT 110-18-9, TEMED 7681-57-4, Sodium metabisulfite 16731-55-8, Potassium metabisulfite  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(polymerization accelerator; synthesis and use for enzyme separation of thermopptg.  
polymers containing enzyme-specific ligands)

IT 78-67-1 7727-21-1, Potassium persulfate 7727-54-0, Ammonium persulfate  
RL: CAT (Catalyst use); USES (Uses)  
(polymerization initiator; synthesis and use for enzyme separation of thermopptg.  
polymers containing enzyme-specific ligands)

IT 227182-79-8P 389636-42-4P 389636-44-6P 389636-45-7P 389636-46-8P  
389636-47-9P 389636-48-0P 443905-61-1P  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT 9001-63-2P, Lysozyme  
RL: PUR (Purification or recovery); PREP (Preparation)  
(synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT 56-12-2, 4-Aminobutyric acid, reactions 56-40-6, Glycine, reactions 60-32-2, 6-Aminocaproic acid 75-36-5, Acetyl chloride 79-06-1, Acrylamide, reactions 88-12-0, reactions 107-95-9,  $\beta$ -Alanine 108-24-7, Acetic anhydride 556-50-3, Glycylglycine 814-68-6, Acryloyl chloride 2210-25-5, N-Isopropylacrylamide 2235-00-9, N-Vinylcaprolactam 7512-17-6, N-Acetylglucosamine 13749-61-6, N-Isopropylmethacrylamide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT 543-24-8P 868-77-9P, 2-Hydroxyethylmethacrylate 1432-45-7P  
3025-95-4P 3025-96-5P, 4-Acetamidobutyric acid 5687-48-9P  
207442-00-0P 389636-39-9P 389636-40-2P 389636-41-3P 389636-43-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT 57-08-9P, 6-Acetamidocaproic acid

RL: SPN (Synthetic preparation); PREP (Preparation)

(synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

IT 443905-61-1P

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(synthesis and use for enzyme separation of thermopptg. polymers containing enzyme-specific ligands)

RN 443905-61-1 HCPLUS

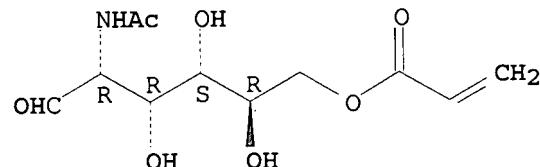
CN D-Glucose, 2-(acetylamino)-2-deoxy-, 6-(2-propenoate), polymer with N-(1-methylethyl)-2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 207442-00-0

CMF C11 H17 N O7

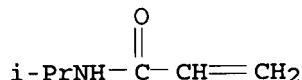
Absolute stereochemistry.



CM 2

CRN 2210-25-5

CMF C6 H11 N O



L17 ANSWER 6 OF 8 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:327811 HCPLUS

DOCUMENT NUMBER: 136:341175

TITLE: Process for the preparation of molecularly imprinted polymers for separation of enzymes

INVENTOR(S): Vaidya, Alankar Arun; Lele, Bhalchandra Shripad; Kulkarni, Mohan Gopalkrishna; Mashelkar, Raghunath Anant

PATENT ASSIGNEE(S): Council of Scientific and Industrial Research, India

SOURCE: U.S., 5 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6379599	B1	20020430	US 2000-481650	20000110
			US 2000-481650	20000110

## PRIORITY APPLN. INFO.:

AB The process comprises (A) reacting a complex of enzyme (e.g., trypsin) and an affinity monomer (e.g., N-acryloyl p-aminobenzamidine hydrochloride) that specifically recognizes the enzyme, a comonomer (e.g., acrylamide), and a crosslinker (e.g., methylenebis acrylamide) in the presence of a polymerization initiator (e.g., ammonium persulfate) and a polymerization accelerator (e.g., tetramethylethylenediamine) at ambient temperature and pressure for 2-24 h to form a crosslinked polymer, (B) crushing the crosslinked polymer to fine particles and (C) adding a solvent (e.g., acetone and chloroform) and extracting the enzyme from the polymer to give a molecularly imprinted polymer. The molecularly imprinted polymers exhibit selective binding of imprinted enzyme, and are useful in separating the imprinted enzyme from aqueous solution of the imprinted enzyme or a mixture containing imprinted enzyme and other enzymes.

IC ICM C08J005-00  
IC S C08F002-44

INCL 264220000

CC 35-4 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 7

ST molecularly imprinted polymer prepn enzyme sepn; acryloylaminobenzamidine acrylamide copolymer mol imprinting trypsin

IT Polymerization catalysts  
(preparation of molecularly imprinted polymers for separation of enzymes)

IT Enzymes, preparation

Ovalbumin  
RL: BUU (Biological use, unclassified); PUR (Purification or recovery);  
BIOL (Biological study); PREP (Preparation); USES (Uses)  
(preparation of molecularly imprinted polymers for separation of enzymes)

IT 351036-77-6P 418792-87-7P 418792-89-9P 418792-92-4P  
RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL  
(Biological study); PREP (Preparation); USES (Uses)  
(preparation of molecularly imprinted polymers for separation of enzymes)

IT 9001-63-2P, Lysozyme 9002-07-7P, Trypsin 9004-07-3P, Chymotrypsin  
RL: BUU (Biological use, unclassified); PUR (Purification or recovery);  
BIOL (Biological study); PREP (Preparation); USES (Uses)  
(preparation of molecularly imprinted polymers for separation of enzymes)

IT 78-67-1, Azobis(isobutyro)nitride 107-15-3, Ethylenediamine, uses  
110-18-9 7637-03-8, Ceric ammonium sulfate 7727-21-1, Potassium  
persulfate 7727-54-0, Ammonium persulfate  
RL: CAT (Catalyst use); USES (Uses)  
(preparation of molecularly imprinted polymers for separation of enzymes)

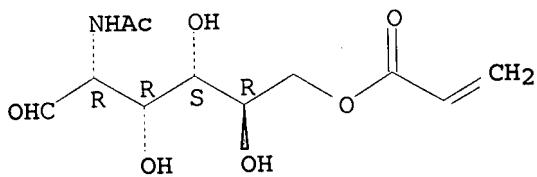
IT 418792-89-9P  
RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL  
(Biological study); PREP (Preparation); USES (Uses)  
(preparation of molecularly imprinted polymers for separation of enzymes)

RN 418792-89-9 HCAPLUS  
CN D-Glucose, 2-(acetylamino)-2-deoxy-, 6-(2-propenoate), polymer with  
N,N'-methylenebis[2-propenamide] and 2-propenamide (9CI) (CA INDEX NAME)

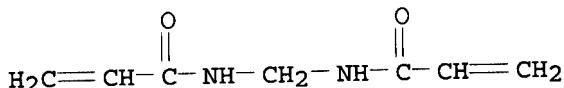
CM 1

CRN 207442-00-0  
CMF C11 H17 N 07

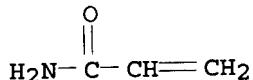
Absolute stereochemistry.



CM 2

CRN 110-26-9  
CMF C7 H10 N2 O2

CM 3

CRN 79-06-1  
CMF C3 H5 N O

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 7 OF 8 HCPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1998:262357 HCPLUS  
 DOCUMENT NUMBER: 129:5154  
 TITLE: Thermal analysis of polyacrylic acid modified by some glucosamine derivatives  
 AUTHOR(S): Tirkistani, Fahd A. A.  
 CORPORATE SOURCE: Department of Chemistry, Faculty of Applied Sciences, Umm Al-Qura University, Makkah Al Mukkarmah, Saudi Arabia  
 SOURCE: Carbohydrate Polymers (1998), Volume Date 1997, 34(4), 329-334  
 CODEN: CAPOD8; ISSN: 0144-8617  
 PUBLISHER: Elsevier Science Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Polymerization of acrylic acid in the presence of N-acetylglucosamine and glucosamine hydrochloride was carried out and the products were characterized using IR spectroscopy. A mechanism for the formation of the modified polymers was suggested. Thermal analyses of the polymers formed were studied. The polymers containing free amino groups are more stable than other polymers.  
 CC 37-5 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 35  
 ST thermal analysis glucosamine group contg polyacrylate;

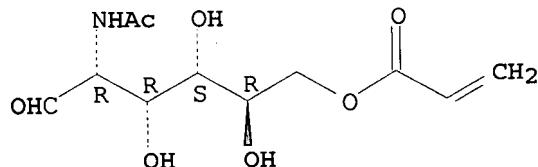
polyacetylglucosamine acrylate prepn characterization; polyglucosamine hydrochloride acrylate prepn characterization  
 IT 66-84-2, Glucosamine hydrochloride 79-10-7, 2-Propenoic acid, reactions  
 7512-17-6, N-Acetylglucosamine  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (in preparation of glucosamine group-containing polyacrylate)  
 IT 207442-01-1P, Poly(N-acetylglucosamine acrylate) 207442-05-5P,  
 Poly(glucosamine hydrochloride acrylate)  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and thermal anal. of)  
 IT 207442-01-1P, Poly(N-acetylglucosamine acrylate)  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and thermal anal. of)  
 RN 207442-01-1 HCAPLUS  
 CN D-Glucose, 2-(acetylamino)-2-deoxy-, 6-(2-propenoate), homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 207442-00-0

CMF C11 H17 N 07

Absolute stereochemistry.



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1980:198783 HCAPLUS  
 DOCUMENT NUMBER: 92:198783  
 TITLE: Glucosamine peptide derivatives and their pharmaceutical compositions  
 INVENTOR(S): Yuichi, Yamamura; Ichiro, Azuma; Shigeru, Kobayashi  
 PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd., Japan  
 SOURCE: Eur. Pat. Appl., 80 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 2677	A1	19790711	EP 1978-101524	19781202
EP 2677	B1	19821013		
R: CH, DE, FR, GB, IT				
JP 54079227	A2	19790625	JP 1977-145415	19771202
JP 54079228	A2	19790625	JP 1977-145416	19771202
JP 02033719	B4	19900730		
JP 54120696	A2	19790919	JP 1978-28012	19780310
JP 63000446	B4	19880107		
US 4430265	A	19840207	US 1982-393870	19820630

## PRIORITY APPLN. INFO.:

JP 1977-145415	19771202
JP 1977-145416	19771202
JP 1978-28012	19780310
US 1978-962033	A1 19781120
US 1981-249902	A1 19810401

## OTHER SOURCE(S) :

MARPAT 92:198783

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Acetylmuramyl dipeptide derivs. I [n = O, R = H, alkyl; n = 1-9, R = H, NH<sub>2</sub>; R<sub>1</sub> and R<sub>2</sub> = alkyl; R<sub>3</sub> and R<sub>4</sub> = H, alkyl, CH<sub>2</sub>OH; R<sub>5</sub> and R<sub>6</sub> = CO<sub>2</sub>H, CONH<sub>2</sub>; R<sub>7</sub> = H, R<sub>8</sub>CO (R<sub>8</sub> = acyclic hydrocarbon which can be  $\omega$ -substituted by cycloalkyl), Q (l = 1-9; m = 0-9; t = 2-100; R<sub>8</sub> and R<sub>9</sub> = H, alkyl; R<sub>10</sub> = alkyl, CO<sub>2</sub>H which can be esterified, OH which can be etherified, pyrrolidino which can be substituted)] were prepared as immunostimulants. Thus, acetylmuramyl dipeptide II (R<sub>11</sub> = H) was esterified with Z- $\beta$ -Ala-OC<sub>6</sub>H<sub>4</sub>NO<sub>2</sub>-p (Z = PhCH<sub>2</sub>O<sub>2</sub>C) to give II (R<sub>11</sub> = Z- $\beta$ -Ala), which was hydrogenated over Pd/C to give  $\beta$ -alanylmuramic acid derivative III (R<sub>12</sub> = H) (IV). IV was N-acylated with CH<sub>2</sub>:CMeCO<sub>2</sub>Su (Su = succinimido) to give III (R<sub>12</sub> = CH<sub>2</sub>:CMeCO) (V), which was polymerized to give the homopolymer of V. V was copolymerd. with N-vinyl-2-pyrrolidone, stearyl vinyl ether, and tridecyl methacrylate to give the resp. copolymers. The cell-mediated immunostimulatory activities of several I were tested.

IC C07H015-04; A61K031-70

CC 34-3 (Synthesis of Amino Acids, Peptides, and Proteins)

Section cross-reference(s): 15, 33, 63

ST acetylmuramyl dipeptide prepn immunostimulant; muramyl dipeptide prepn immunostimulant

IT Immune enhancement

(by acetylmuramyl dipeptide derivs.)

IT Peptides, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of, as immunostimulants)

IT Glycopeptides

RL: SPN (Synthetic preparation); PREP (Preparation)  
(acetylmuramic acid-containing, preparation of, as immunostimulants)

IT 100-02-7, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification of)

IT 302-79-4 506-33-2 6040-06-8 58186-10-0 73339-98-7 73347-46-3

RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification of, with hydroxynorbornenedicarboximide)

IT 79-41-4, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification of, with hydroxysuccinimide)

IT 6066-82-6

RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification of, with methacrylic acid)

IT 21715-90-2

RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification of, with muramic acid derivative)

IT 79-10-7, reactions 5579-63-5 58185-99-2 73339-93-2

RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification of, with nitrophenol)

IT 71811-14-8

IT 23680-31-1 30992-29-1  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(peptide coupling of, with serine derivative)

IT 88-12-0, reactions 930-02-9 2495-25-2  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(polymerization of, with methacryloyl- $\beta$ -alanyl-acetylmuramyl dipeptide derivative)

IT 73366-51-5P 73366-55-9P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and conversion of, to sodium salt)

IT 66111-49-7P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and deblocking-reaction with muramic acid derivative)

IT 2862-03-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and esterification of, with hydroxynorbornenedicarboximide)

IT 3422-91-1P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and esterification of, with nitrophenol)

IT 73341-24-9P 73341-26-1P 73341-28-3P 73341-32-9P 73341-36-3P  
73341-40-9P 73341-42-1P 73341-45-4P 73341-47-6P 73348-28-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and hydrogenolysis of)

IT 73340-21-3P 73340-26-8P 73366-44-6P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and immunostimulating activity of)

IT 71811-17-1P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and neutralization of)

IT 63091-92-9P 66111-82-8P 66141-64-8P 71811-15-9P 71811-18-2P  
73341-34-1P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and partial deblocking of)

IT 73340-11-1P 73340-29-1P 73340-30-4P 73340-31-5P 73340-32-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and polymerization of)

IT 38862-25-8P 73340-12-2P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and reaction of, with aminoacyl-acetylmuramyl dipeptide derivs.)

IT 73339-91-0P 73339-94-3P 73339-96-5P 73339-97-6P 73340-00-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and reaction of, with aminoacylmuramic acid dipeptide derivative)

IT 72009-73-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and reaction of, with dipeptide derivative)

IT 71811-16-0P 73341-31-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)

(preparation and reaction of, with muramic acid derivative)

IT 73340-03-1P 73340-05-3P 73340-07-5P 73340-09-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction of, with  $\beta$ -alanyl-acetyl-muramyl dipeptide derivative)

IT 2123-85-5P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction of, with  $\beta$ -alanyl-acetylmuramyl dipeptide derivative)

IT 73341-25-0P  
 RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation and N-acylation and immunostimulating activity of)

IT 73341-27-2P 73341-29-4P 73341-30-7P 73341-33-0P 73341-41-0P  
 73341-43-2P 73341-46-5P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and N-acylation of)

IT 73341-44-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and O-acylation by, of muramic acid derivative)

IT 66112-28-5P 66965-04-6P 73341-39-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and O-acylation of, with amino acid derivs.)

IT 73339-88-5P 73339-89-6P 73339-90-9P 73339-92-1P 73339-95-4P  
 73339-99-8P 73340-01-9P 73340-02-0P 73340-04-2P 73340-06-4P  
 73340-08-6P 73340-10-0P 73340-13-3P 73340-14-4P 73340-15-5P  
 73340-16-6P 73340-17-7P 73340-18-8P 73340-20-2P 73340-22-4P  
 73340-23-5P 73340-24-6P 73340-25-7P 73340-27-9P 73340-28-0P  
 73341-38-5P 73341-48-7P 73348-25-1P 73365-99-8P 73366-00-4P  
 73366-42-4P 73366-43-5P 73366-45-7P  
 73366-46-8P 73366-47-9P 73366-48-0P  
 73366-56-0P 73395-10-5P 73543-05-2P  
 RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of)

IT 501-53-1  
 RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with aminodecanoic acid)

IT 2432-99-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with benzyloxycarbonyl chloride)

IT 14617-86-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with  $\beta$ -alanyl-acetylmuramyl dipeptide derivative)

IT 1738-86-9 1738-87-0 2389-46-0 3304-59-4 3642-91-9 59188-41-9  
 RL: RCT (Reactant); RACT (Reactant or reagent)

(O-acylation by, with acetylmuramyl dipeptide derivative)

IT 62928-83-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)

(O-acylation, with amino acid derivs.)

IT 73366-55-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)

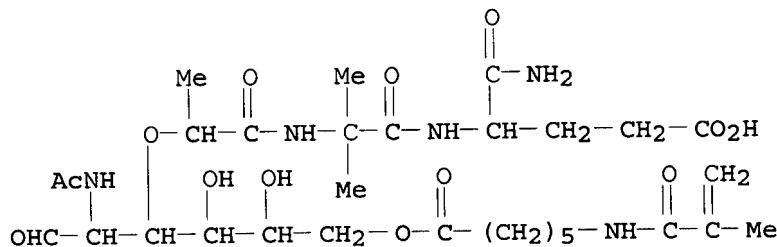
(preparation and conversion of, to sodium salt)

RN 73366-55-9 HCAPLUS

CN D- $\alpha$ -Glutamine, N2-[N-[N-acetyl-6-O-[6-[(2-methyl-1-oxo-2-propenyl)amino]-1-oxohexyl]muramoyl]-2-methylalanyl]-, homopolymer (9CI)  
 (CA INDEX NAME)

CM 1

CRN 73340-31-5  
CMF C30 H49 N5 O13



IT 73366-44-6P

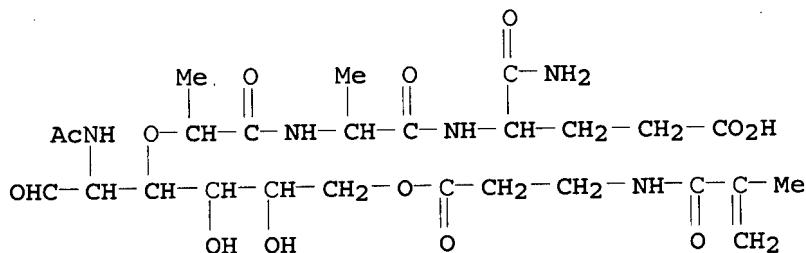
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and immunostimulating activity of)

RN 73366-44-6 HCAPLUS

CM 1

CRN 73340-11-1

CMF C26 H41 N5 O13



IT 73366-42-4P 73366-43-5P 73366-45-7P

73366-46-8P 73366-47-9P 73366-48-0P

73366-56-0P

URL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 73366-42-4 HCAPLUS

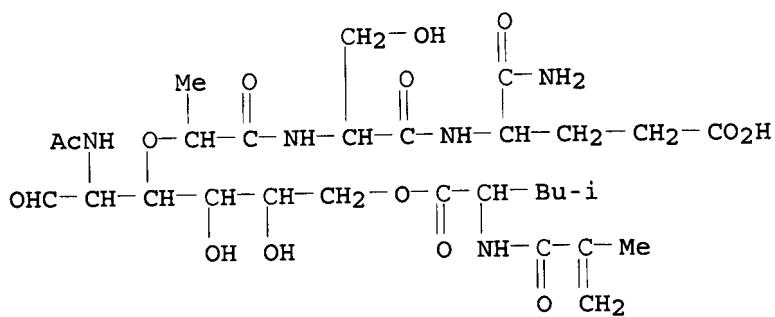
CN D- $\alpha$ -Glutamine, N2-[N-(N-acetyl muramoyl)-L-seryl]-, 6'-ester with

5. 2-(2-methyl-1-oxo-2-propenyl)-L-leucine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 73340-30-4

CMF C29 H47 N5 O14

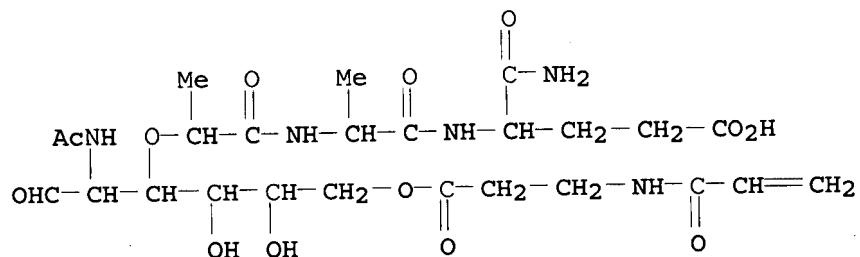


RN 73366-43-5 HCAPLUS  
 CN D- $\alpha$ -Glutamine, N2-[N-(N-acetylmuramoyl)-L-alanyl]-, 6'-ester with  
 N-(1-oxo-2-propenyl)- $\beta$ -alanine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 73340-29-1

CMF C25 H39 N5 O13

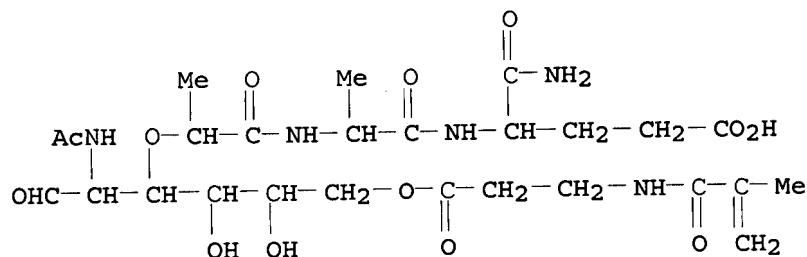


RN 73366-45-7 HCAPLUS  
 CN D- $\alpha$ -Glutamine, N2-[N-(N-acetylmuramoyl)-L-alanyl]-, 6'-ester with  
 N-(2-methyl-1-oxo-2-propenyl)- $\beta$ -alanine, polymer with  
 1-ethenyl-2-pyrrolidinone (9CI) (CA INDEX NAME)

CM 1

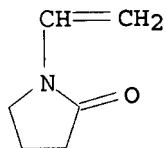
CRN 73340-11-1

CMF C26 H41 N5 O13



CM 2

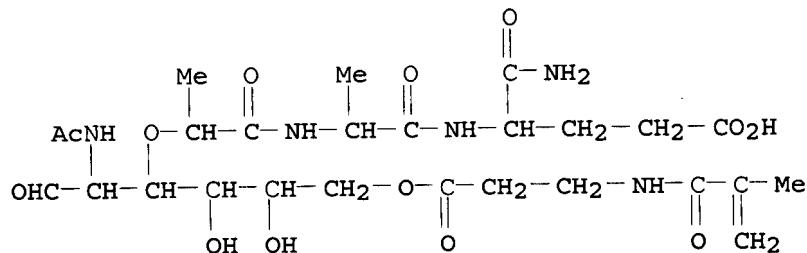
CRN 88-12-0  
 CMF C6 H9 N O



RN 73366-46-8 HCPLUS  
 CN D-α-Glutamine, N2-[N-(N-acetylmuramoyl)-L-alanyl]-, 6'-ester with  
 N-(2-methyl-1-oxo-2-propenyl)-β-alanine, polymer with  
 1-(ethenyl)octadecane (9CI) (CA INDEX NAME)

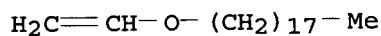
CM 1

CRN 73340-11-1  
 CMF C26 H41 N5 O13



CM 2

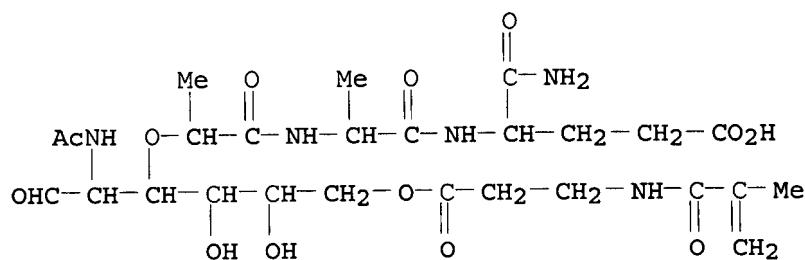
CRN 930-02-9  
 CMF C20 H40 O



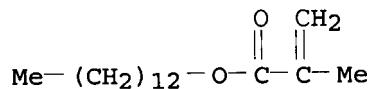
RN 73366-47-9 HCPLUS  
 CN D-α-Glutamine, N2-[N-(N-acetylmuramoyl)-L-alanyl]-, 6'-ester with  
 N-(2-methyl-1-oxo-2-propenyl)-β-alanine, polymer with tridecyl  
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 73340-11-1  
 CMF C26 H41 N5 O13



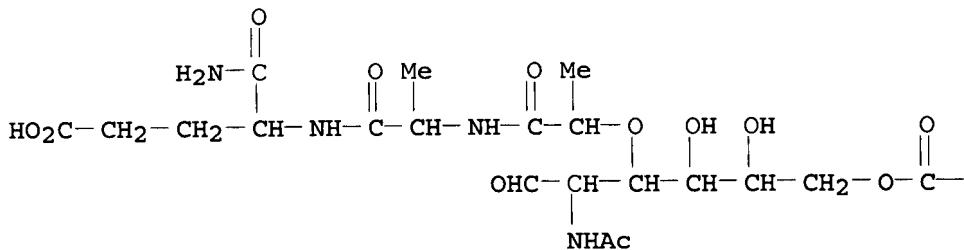
CM 2

CRN 2495-25-2  
CMF C17 H32 O2RN 73366-48-0 HCPLUS  
CN D- $\alpha$ -Glutamine, N2-[N-[N-acetyl-6-O-[11-[(2-methyl-1-oxo-2-propenyl)amino]-1-oxoundecyl]muramoyl]-L-alanyl]-, homopolymer (9CI) (CA INDEX NAME)

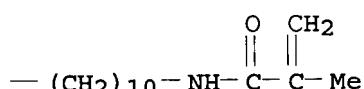
CM 1

CRN 73340-32-6  
CMF C34 H57 N5 O13

PAGE 1-A



PAGE 1-B



RN 73366-56-0 HCPLUS

CN D- $\alpha$ -Glutamine, N2- [N- [N-acetyl-6-O- [6- [(2-methyl-1-oxo-2-propenyl)amino]-1-oxohexyl]muramoyl]-2-methylalanyl]-, homopolymer, sodium salt (9CI) (CA INDEX NAME)

CM 1

CRN 73366-55-9

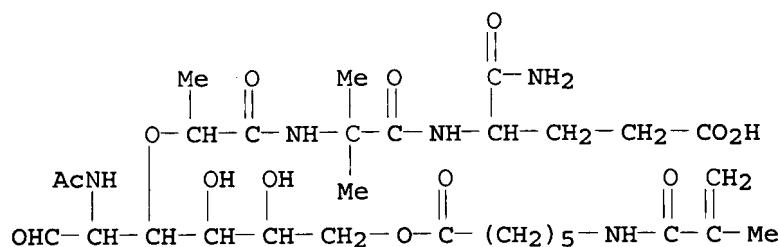
CMF (C30 H49 N5 O13)x

CCI PMS

CM 2

CRN 73340-31-5

CMF C30 H49 N5 O13



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